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ABSTRACT

Attitudes of Israeli senior faculty concerning research and teaching were evaluated using the Carnegie international questionnaire. Approximately one third of the total faculty population in Israel was randomly sampled, but stratified by institutional size. The questionnaire was sent to 2,225 faculty and 502 returned completed forms (22.56 percent). Analysis of the data included factor analysis to give a view of the main features of the data. The main finding was that research orientation is the unifying factor of the present Israeli professoriate. Other findings included (1) variances between teaching and research were explained by gender, type of institution, rank and preferences between teaching and research; (2) preferences for teacher over research were much more common among "newcomers" to the profession, women, lower ranking faculty, and those in the humanities, social sciences, fine arts and education; (3) research production was perceived as the most important consideration for promotion; (4) involvement in international academic activity was highly valued by the faculty with 62.5 percent reporting publishing articles and books in other countries. (Contains 13 references.) (JB)

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ED 375 693

The Academic Profession Approaches the Twenty-First Century: The Carnegie Foundation International Survey, Symposium

THE AMBIVALENCE OF THE ISRAELI ACADEMIC PROFESSION

RESEARCH VS. TEACHING

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New Orleans

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The Local Context of the Academic Profession

The status and role of the academic profession in Israel seems to be in a state of ambivalence. Public opinion surveys tend to place many academic professions at the top of the occupational restige scales. Ben-David (1986) pointed out that academic activity in Israel retains some of the attitudes of Jewish tradition which considered learning a daily religious duty rather than a means of personal advancement. Intellectual achievement is regarded as a self-satisfying activity and as a self-evident contribution to the public good. Yet in contrast with the high prestige that the academic profession is presumed to enjoy among the public, at large its socio-economic condition, and political status has deteriorated considerably since the late seventies, compared with administrative, professional and other business occupations with the same education requirements.

Although the Israeli academy is based upon the tenet that research and teaching together define the role of the faculty, in fact research is antecedent to teaching, a necessary pre-requisite for membership in the academic profession. It is research conducting and publishing that earns one the right to teach.[1]

The first two Israeli universities were inaugurated in 1924 and 1925. The Hebrew University of Jerusalem and the Technion (Israeli Institute of Technology) in Haifa followed the academic model of the German university, where professors were expected to teach the findings of their own original research. However, the organization and administration of the Israeli universities were influenced by the spirit of collective participation which prevailed

[1] See Chen, M. (1993). "Integration of research and teaching: The case of the Israeli professoriate." Paper presented at the annual conference of ASHE, Pittsburgh, Nov. 4-7.

in the Jewish community in Palestine. Some of the institutions in the non-university sector were founded at the turn of the century as schools of professional training, granting professional certificates. Only in the last two decades have they been authorized to grant first academic degrees.

At present, the Israeli system of higher education consists of twenty-two institutions: six research universities, one research institute, an "open" (distance) university, six colleges granting various professional degrees and eight teachers' colleges, granting the B.Ed. Eleven university extension campuses are also supervised by the Council of Higher Education (CHE), but are not regarded as independent institutions with degree-granting status.

The Student Body - One of the main features of the Israeli system of higher education is the rapid growth of the student body. This is a consequence of the steadily growing number of high school graduates who pursue higher education. The size of an Israeli cohort is about 115,000 students. About 85% of cohort study in the twelfth grade and about one third successfully pass, the matriculation examinations. About 20% of a cohort are admitted to a university, and about 18% to another institute of higher education (Israel, Ministry of Education, 1992, p. 5).

The Faculty - From the early sixties until 1983, the number of professors and lecturers grew at a faster rate than the student population. Since then, the total number offaculty has remained practically the same, in spite of the rapid growth of the student body. In 1991 the senior staff at all Israeli universities numbered 4,474 compared with 4,074 in 1979 (Israel, CBS, 1992, table 22.47). The relative decline in the size of the academic work-force has resulted in larger classes, fewer teaching and research assistants, and less time and resources

for research. In contrast with the rapid growth and diversification of the student body, the academic staff has changed very little. The average age has risen. The percentage of women among the senior faculty of the academic departments of the universities grew from 11% in 1966 to 20% in 1988 (Shenhav, 1991). 10.5% of the faculty are of Asian-African origin and only 1.7% are non-Jews (Israel, CBS, 1984, table 20).

Growth and diversification of the student clientele has been the most important transformation in Israeli higher education. This transformation has been coupled with an effort to address the ever growing social demand for higher education, without allowing the growth of the expansive university sector. Thus easing the pressure by "upgrading," or academizing, existing post-secondary schools and eight teachers education institutions, and permitting them to grant first academic and professional degrees. This development means that the colleges in Israel provide a different context of teaching/learning than the strong Humboldtian tradition of the research-oriented faculty in Israeli universities. This new brand of faculty joined the ranks of higher education in order to teach and train a new generation of professionals, rather than to become researchers. It is pertinent to consider how they will affect the traditional research orientation of the Israeli professoriate and to address the possibility that they may transform its tradition.

So far the Israeli university professors has responded to the combined pressures of a larger and more diversified student body, heavier teaching loads, decreased resources and time for research, changing standards of academic excellence, declining salaries and loss of status and prestige, with a sequence of strikes and labor disputes. The longest of such strikes to date (Jun. through late March 1994) has just ended.

The Sample

The Carnegie international questionnaire was sent to a sample of the senior faculty in institutions of higher education recognized by the Israeli Council for Higher Education (six universities, six professional colleges and eight teachers' colleges). Approximately one third of the total faculty population in Israel was randomly sampled, but stratified by institutional size. The questionnaire was sent to a total of 2225 faculty, 502 completed questionnaires were received (22.56%).

Table 1: about here

As seen in Table 1 in general, the sample was found representative of the population on the three comparison variables of institutional size, academic rank, and departmental division. Almost half of the respondents (46.3%) work in the large universities; 29.2% report that they work in one of the smaller universities, and 24.5% work in 14 colleges. There is no proper explanation for the slight over-representation of the large universities and the colleges and the slight under-representation of the smaller universities in the response rate.

Females comprise approximately 20% of the senior faculty of universities (Shenhav, 1991). Their respective percentages among the university respondents are 20.6% in the sample of the large universities, 18.0% of the sample of the small universities and 44.5% of the colleges. They constitute 27.9% of the respondents. Once again the gender distribution of the respondents resembles the distribution of the population.

Findings[2]

In reporting the main findings of the survey, attention was given to the respondents' answers to issues related to present day problems of the faculty. Background variables such as gender, fields of study, rank, terms of employment, etc., are considered asexplanatory of variables such as working conditions; engagement inteaching, research, service and administration; and social and educational perspectives. Field of study is strongly associated with gender, rank, typeof institution and preference for research versus teaching. 84.1% of the respondents who received degrees in the sciences(mathematics, natural sciences, and engineering) are males,compared with only 63.9% of those who hold degrees in social sciences, humanities, education, arts. While the proportion offemales in both the student body and the professoriate isconstantly growing, females are significantly under-represented inthe upper ranks and in the hard sciences.

A number of variables were further analyzed by various methods of multivariate analysis. Two scales have been constructed according to the responses to several items. One is a measure of job satisfaction (Jobsat); the other is a measure of commitment to respondents' main place of work (Instcom). An overall synthesis of the findings is attempted by a factor analysis, which aims at presenting a comprehensive view of the main features of the Israeli data.

Research vs. Teaching

Allocation of working time to teaching and to research differsgreatly among various

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[2] For a full report on the Israeli data see Chen, M. Gottlieb, E.E. and Yakir, R. (1994 forthcoming). "The Academic Profession in Israel: Continuity and Transformation." In Altbach, P. (ed.).

categories of the academic faculty. Table 2shows the results of a multiple analysis of variance. Theanalysis indicate how much of the variances of teachingand of research are explained by four characteristics of thefaculty: gender, type of institution, rank and preferences towardteaching versus research.

Table 2: about here

The multiple analysis of variance in Table 2 indicates that the reported amount of time devoted both to teaching and to research is significantly explained by the four variables. The respondents report more time spent on research than on teaching, and the variance of time on research is better explained than the variance of teaching. Females spend many more hours in teaching and fewer hours in research than males. Regardless of gender, professors spend less time in teaching and more on research than lecturers and senior lecturers. Contrary to expectations, the faculty of the colleges is not involved in teaching significantly more than the university faculty, but the university faculty spend more time on research regardless of gender and rank.

Finally, faculty who lean towards teaching (fully orpartially) spend more time on teaching and less time onresearch, compared with faculty who prefer research to teaching. It should be noted, however, that total variance of the teaching(13%) and the research loads (19%) explained by the independentvariables is statistically significant but quite moderate. Itsuggests that personal consideration dictate how much time faculty decide to spend at work and how they decide to divide it among teaching, research and other activities. These finding of the Israeli case study might explain Israel's location on the research/teaching continuum in the international sample. The comparative analysis of the initial data from all the case

studies in the international survey, shows Israel among the highest research oriented systems.[3]

Research vs. Teaching in Comparative Perspective

Thirty-two 'interest in research' related variables from the international survey data of the fourteen countries[4] were used in an exploratory principle components analysis. These variables included in addition to basic demographic data, research related matters such as hours per week devoted to research, number of courses taught and level (undergraduate or graduate), and current engagement in research projects. Availability of facilities and funds, amounts of grants received in the preceding three years, quality of research assistants, and feeling under pressure to do more research, as well as mean number of articles and books published by the sample in each country.

By employing a three-dimensional plot, using each of the highest item loading from the factor analysis (see appendix I); primary interest in research, articles published in the last three years, and hours per week devoted to research, for the x, y and z dimensions, three groups emerged:

Figure 1: x-y-z 3-Variable Plot about here

The three groups seen in Figure 1, consist of those countries with lower research orientation

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[3] See Gottlieb, E. E. (1994). "Mapping the professoriate: Teaching- vs. research-orientation in fourteen nations." Paper presented at Comparative and International Education Society (CIES) Annual Conference San Diego, California 21-24 March.

[4] Source of data: The Carnegie Foundation's International Survey of the Professoriate in Fourteen Nations, 1993/4, Tables.

(LRO), comprising Brazil, Chile, Mexico and Russia: an intermediate group (IRO), comprising Australia, Hong Kong, Korea, U.K. and U.S.; and the five countries in which faculty have indicated the highest orientation toward research (HRO), The Israeli system is in this group along with Germany, Japan, the Netherlands and Sweden. As can be seen Israel is the closest out of the four countries in this group to the intermediate group of countries were teaching is important along with research.

This position was further explored by analyzing the faculty's declared interest in teaching in the fourteen nations, and testing whether the research orientation grouping of the countries in the survey still holds when teaching variables are examined. Twenty-two variables including in addition to demographic data, job satisfaction, primary interest teaching vs. research, attitudes towards evaluation, and attitudes towards promotion. The data analysis consisted of determining correlation coefficients for all possible binary combinations of the twenty-two variables.

Figure 2: Predicted-observed Plot from the

Multiple Regression about here

The predicted-observed plot from the multiple regression analysis of 'interest in teaching' and the six higherst correlation variables (see appendix II) shows further evidence for the tentative country groupings suggested by the 'interest in research' x-y-z plot, with Israel somewhere between the lowest teaching orientation (LTO) and the intermediate group which consist of the U.S. the U.K. Australia, Hong-Kong and Korea. The strong orientation of the Israeli faculty toward research might be coupled with interest in teaching when compared to research oriented systems such as Germany and the Netherlands.

Two opposing approaches to higher education are being debated in many countries. The mutuality approach, which is firmly rooted in academic ideology and practice, holds that research and teaching are complementary roles and activities, justifying and enhancing each other. In contrast, the competition approach regards teaching and research as competitive, rather than complementary (Fox, 1992). Several items in the questionnaire are related to this controversy. They may serve to uncover attitudes and opinions of various segments of the faculty relevant to the emerging conflict between the traditional commitment of higher education to scientific discovery and growing demands for mass higher education (Boyer, 1990, p. 13).

Teaching/Research Orientation of the Israeli Faculty

The findings of the comparative analysis can be better understood by further exploring the responds of the Israeli faculty. Although the majority of the sample, 62% declare their research-orientation (13.5% preferring only research, 48.1% preferring both teaching and research but lean towards research), the preference differs significantly by gender, by type of institution in which they teach, by field of teaching, and by rank (see Table 3).

Table 3: about here

The findings in Table 3 show that preferences for teaching over research are much more common among the "newcomers" to higher education: college professors, women, lower ranking faculty and in the humanities, social sciences, fine arts and education. As mentioned above in the compartive analysis of the international data, there is a high positive correlation between preference for research and number of published articles.

Nevertheless, it should be emphasized that a significant segment of the male faculty in the large research universities and even in the science departments, prefer teaching. A relatively larger segment the faculty report that they received excellent training for research compared to the training they recevied for teaching. How do the respondents perceive a possible conflict between research and teaching? Table 4 classifies the respondents according to their perceptions of research as competitive or supportive of teaching.

Do the respondents perceive a possible conflict between research and teaching? Table 4 classifies the respondents according to their perceptions of research as competitive or supportive of teaching.

Table 4: about here

The findings show a high degree of disagreement among the respondents about the research/teaching relationship. About one quarter, on the average, subscribe to the mutuality point of view which holds that teaching and research support each other. The attitude of about 30% is that there is competition between the two roles. About 40% tend to assume that there is no relationship between teaching and research. Finally, it should be noted that 38.6% agreed or strongly agreed that excellence in teaching should be the main consideration in promotion.

It appears that a large percentage of Israeli academics accept the proposition that research and teaching are complementary, though there is a significant tendency to view the two academic activities as competitors. However, tradition and the absence of clear criteria for measuring productivity and excellence in teaching have served to entrench research productivity as the sole criterion for appointment, tenure, and promotion. Ranking of

research as more important than teaching is formally acceptable even in professional university departments such as social work, education, fine arts and in the four year colleges. Diversification of higher education by the inclusion of professional, non-research institutions under the umbrella of the Council of Higher Education and by the establishment of new academic programs and degrees, requires fresh examination of the mutuality versus competition approaches to the job definition of the academic profession. It is clear that, at present, the majority of the Israeli senior faculty regard research activity as the salient feature of the academic profession. Almost all respondents (96.6%) reported that they are now engaged in research. However, only 23.9% reported that they manage research of their own, and only 43.7% reported that they are working independently on a research project. 90.6% of the faculty reported that they received some financial assistance to do research during the last three years.

Research Production

Respondents mostly agreed that research and publishing should be required of all members of the academic profession. Research production is perceived as the most important consideration for promotion. The Israeli respondents are satisfied with the overall research climate and conditions. More problematic is the heated defense of research as the only proper criterion for academic advancement.

This position is supported by most of the faculty, and especially by these who lean

toward research themselves:[5] professors more than lower ranks, male faculty more than female and faculty in the science and engineering departments, etc. Considering the dilemmas of transforming from an elite to a mass education system such as the Israeli system is facing today, continuing commitment to this conception of academic excellence may portend conflict in the future.

Involvement in international academic activity is highly valued by the faculty itself and by official governmental authorities. Israel is a small country, remote from the international centers of research and teaching. Its language is spoken by very few beyond its borders. Generous sabbatical allotments and travel funds are part of a policy of encouraging participation in international activities as a means of protecting high academic standards.

More than half of the respondents (62.5%) reported that they have published articles and books in other countries; the mean number of publications per respondent was 8.3. 76.1% of the sample participated in academic conferences outside of Israel in the past three years; 72.7% are members of scientific societies outside of Israel. 43.4% of the respondents received their highest academic degree abroad.

About 56.4% of the sample reported travelling abroad to study or to do research. They spent, on the average, 5.4 months abroad during the last 10 years. 20.1% have served as

[5] This finding was explored in the comparative analysis (Gottlieb, 1994). A multiple regression analysis, with primarily interested in teaching as the dependent variable resulted in two variables with statistically significant correlations, which explain 87% of the variance in the criterion variable (interest in teaching): gender and teaching as the criterion for promotion. The higher the number of male faculty the less interested in teaching is the system; the higher the interest in teaching, the more faculty declaring that teaching should be the primary criterion for promotion.

faculty members at foreign institutions. 28.1% spent a sabbatical year abroad in the last three years and 44.6% in the last 10 years. However, we note that in spite of the generous travel arrangements, a large segment of the faculty does not go abroad.

Practically everyone (94%) agrees that in order to keep up with the discipline, one must read international publications and maintain connections with scholars in other countries. However, only 36% of the faculty agree that the curriculum should be more international in focus.

The Unifying Factor of the Israeli Professoriate

Correlation analysis was used with a view toward isolating the combination of variables which could best characterize the Israeli professoriate. Statistical considerations precluded incorporation of variables with uniform responses. A review of the findings suggested a list of 18 variables, selected from the eight sections of the questionnaire, which have substantial explanatory power and are intercorrelated. Principal component factor analysis was performed on these variables. Table 5 describes the factor structure, factor loadings and the percent of the total variance explained by each of the five factors.

Table 5: about here

Factor analysis of the 18 variables provided five meaningful factors which could be identified by their loadings. Together these five factors explained 47.9% of the total variance.
The factor explaining the greatest proportion of the variance (14.0%) was labelled "Research Orientations". It deals with the teaching/research continuum, international publications and

participation in conferences, and is also associated with the natural-science department affiliation, rank and gender. The second most meaningful factor (variance explained = 11.2%) deals with job features like rating of salary and other resources, research resources and salary in deciding to leave or stay at the institution. This factor was labelled "Resources". A third factor, labelled "Jobsat," explains 8.3% of the total variance and is associated with rank, position, rating of students, and commitment to the institution. The fourth factor, labelled "Work place" explains 7.5% of the variance. It deals with type of institution (college or university) and institutional reputation as motivation for staying at the same work-place. The last factor, labelled "Ideology" explains 6.9% of the total variance, and is associated with gender, the influence of academics on society and protecting academic freedom.

The factor analysis used to analyze the Israeli sample suggests a partial departmentalization of five spheres of academic life which can be used to better understand other national systems: (1) research versus teaching;(2) financial resources; (3) rank and job satisfaction; (4) institutional setting; and (5) academic ideology. It also supports the main finding of this case study, namely, that research orientation is the unifying factor of the present Israeli professoriate.

In-depth qualitative studies of academic life, e.g. Harold's (1984) of the U.K. system and Burton Clark's (1987) of the U.S. system, have showed how crucial the organizational determination of the mix of the two primary tasks, teaching and research, are in shaping the life of the academy. The Israeli case study as well as the preliminary analysis of the international survey data shows that the mix between interest in teaching and interest in research is correlated with other elements in academic life such as hours of work devoted

to each, rank, type of institution, promotion procedures, availability of research funds and publications.

At the close of the twentieth century, it looks as though interest in research, involvement in research, alone and in collaboration with others, obtaining funds for research, and scholarly publication have strong disciplinarity (in its double 'knowledge-power' meaning) relevance in the day-to-day shaping of academic life transnationally.

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Table 1: The Senior Faculty Population of Israel[1], the Survey Sample, Respondents, and Female Respondents by Type of Institution (%)

	Senior Faculty Population	Survey Sample	All Respondents	Females Thereof
2 Large Universities (10,000 students or more)	39.5	44.8	46.3	20.6
4 Small Universities (5,000 - 10,000 students)	37.7	34.9	29.2	18.0
14 Professional Colleges (Up to 5,000 students)	22.8	20.3	24.5	44.5
Total %	100.0	100.0	100.0	27.9
Total N	5,107	2,225	502	137

Table 2: Mean Weekly Hours Spent on Teaching and on Research when Classes are in Session by Gender, Type of Institution, Rank and Teaching vs. Research Preferences: A Multiple Analysis of Variance

	Dependent Variables					
	Teaching			Research		
Independent Variables	N	Means	P<	N	Means	P<
Gender			.000			.000
Females	111	21.21		100	15.80	
Males	324	16.62		313	22.24	
Institution			.280			.001
Colleges	108	19.56		92	15.36	
Universities	327	17.21		321	22.20	
Rank			.001			.040
Professors	205	16.54		204	21.94	
Lecturers + Senior	230	18.91		209	18.14	
Preferences			.012			.001
Teaching	165	20.34		149	14.70	
Research	270	16.29		260	24.05	
Total (Weighted)	483	17.89		457	20.86	
R^2		.127	.001		.189	.000

Table 3: Teaching/Research Preference by Institution, Gender, Field of Study, Publication of Scientific Articles, Rank and Training

	Leaning towards Teaching	Leaning towards Research	Total %	Total No.	P<
Institutions					
Large Universities	27.5	72.5	100.0	219	
Small Universities	33.9	66.1	100.0	165	.000
Colleges	72.5	27.5	100.0	119	
Gender					
Females	62.3	37.7	100.0	136	.000
Males	29.7	70.3	100.0	350	
Field of Study					
Soft Sciences	38.8	61.2	100.0	227	.000
Hard Sciences	23.6	76.4	100.0	266	
Articles Published					
No answer or none	62.9	37.3	100.0	379	.000
One or more	26.1	73.9	100.0	123	
Rank					
Professors	26.3	73.7	100.0	220	.000
Senior Lecturers and Others	53.7	46.3	100.0	279	
Training Rated As:					
Excellent for Research	20.8	79.2	100.0	192	.000
Excellent for Teaching	45.4	54.6	100.0	152	.000
Total	39.1	61.9	100.0	492	.000

Figure 1

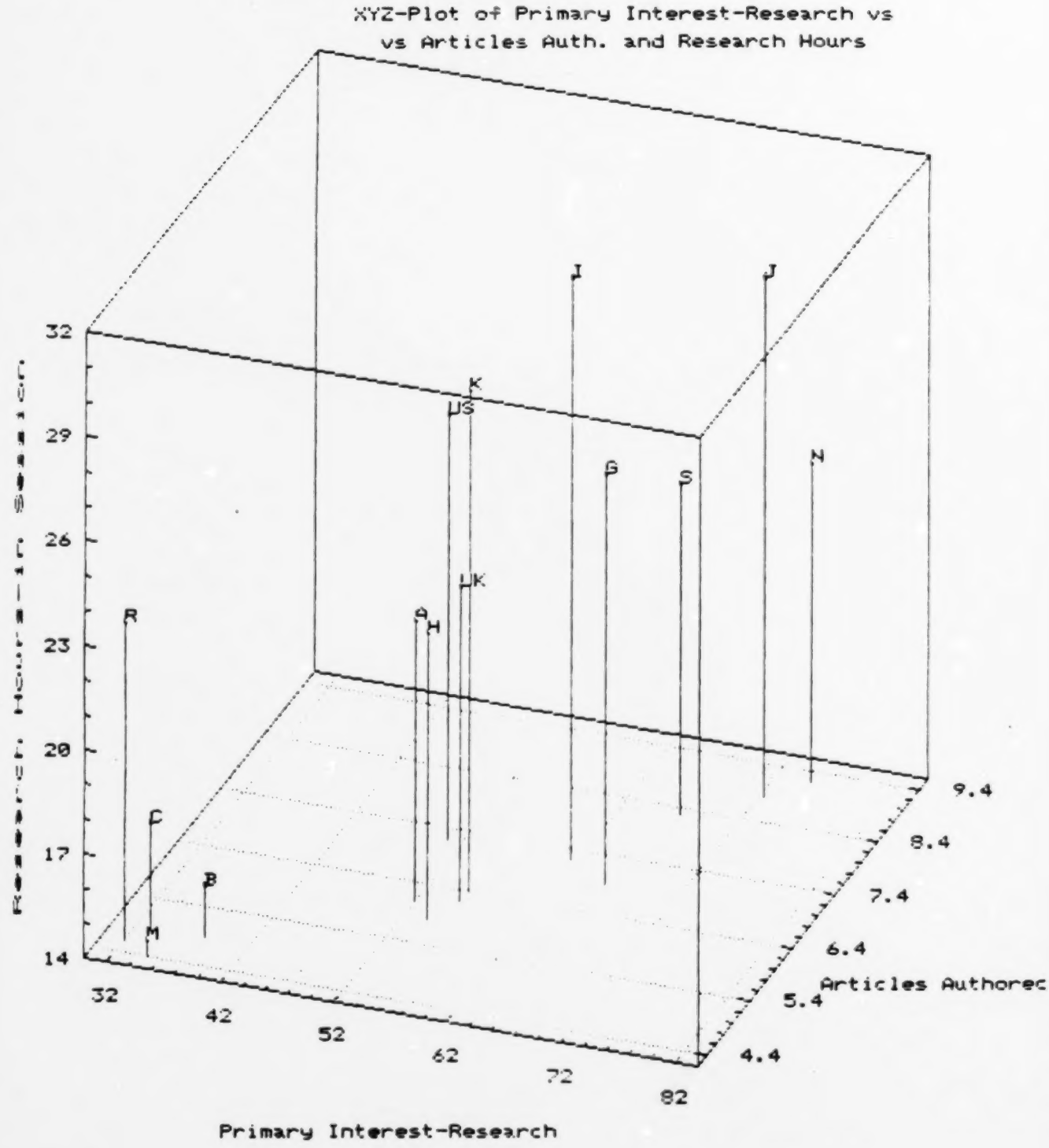
XYZ-Plot of Primary Interest-Research vs
vs Articles Auth. and Research Hours
32
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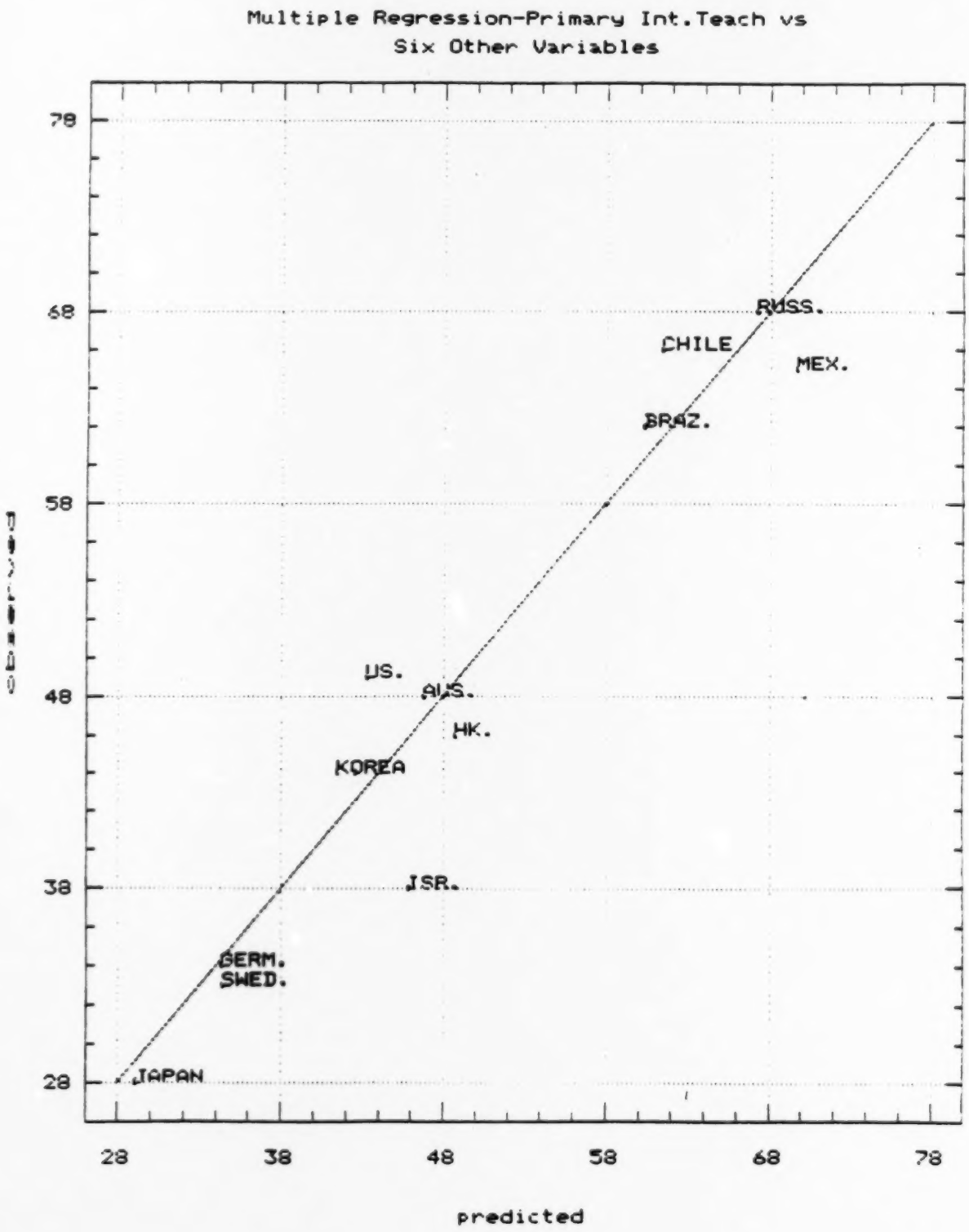
Figure 2


Multiple Regression-Primary Int.Teach vs
Six Other Variables
78
68
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48
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28
RUSS.
CHILE
MEX.
BRAZ.
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AUS.
HK.
KOREA
ISR.
GERM.
SWED.
JAPAN
28
38
48
58
68
78
predicted

Table 4: Teaching and Research as Competing or Supporting Each Other

	Positive (Supporting)	The Same	Negative (Competing)	Total %	Total N
Research obligations influencing teaching	30.3	37.6	32.1	100.0	413
Teaching load influencing research	17.0	43.9	26.9	100.0	377

Table 5: Factors Structure: Item Loadings, and Variance Explained by Factors

Items	Loadings				
	Research Orientation	Resources	JOBSAT	Work place	Ideology
International Publications	**0.71**	-0.07	0.02	0.15	0.08
Papers presented	**0.64**	-0.18	-0.15	0.05	0.17
Teaching vs. research	**0.63**	0.29	0.01	-0.01	-0.06
Department	**-0.65**	-0.32	0.08	0.07	0.23
Rating of Salary	0.14	**0.76**	-0.02	0.02	-0.02
Service important	-0.11	**0.48**	-0.02	0.13	0.28
Research resources/leave	-0.10	**-0.45**	-0.25	0.23	-0.03
Salary important/leave	-0.04	**-0.72**	0.01	0.24	0.01
Influence on faculty	0.11	-0.07	**0.64**	-0.21	0.05
Instcom	-0.16	0.01	**0.58**	0.10	-0.12
Rank	**-0.38**	-0.20	**0.49**	0.05	0.16
Jobsat	-0.03	0.33	**0.55**	**-0.54**	0.07
Rating of students	0.22	0.04	**0.35**	0.10	-0.09
Institute reputation/stay	-0.01	-0.08	-0.09	**0.78**	-0.03
Institutional size	0.36	0.14	-0.09	**0.50**	-0.11
Academics are influential	0.20	0.20	-0.00	-0.16	**0.68**
Protecting academic freedom	-0.07	0.07	-0.15	-0.40	**-0.56**
Gender	**0.43**	0.24	0.06	0.08	**-0.59**
Percentages of Total Variance Explained by Factor	14.0	11.2	8.3	7.5	6.9

Appendix II

ITEM	QUESTION	DESCRIPTION
GEND.M.	Q1	Gender-Male
TCHTRNQAL	Q4A	Quality of training for role as teacher
JBSATTCH	Q27A	Job Satisfaction-courses taught. *
JBSATCOL	Q27B	Job Satisfaction-relationships with colleagues
JBSATSEC	Q27C	Job Satisfaction-job security
JBSATPRO	Q27D	Job Satisfaction-prospects for promotion
JBSATIDE	Q27E	Job Satisfaction-ability to pursue own ideas
JBSATINST	Q27F	Job Satisfaction-way institution is managed
JBSATALL	Q27G	Job Satisfaction-situation as a whole
TCHIN#CRS	Q37A	Influence on teaching-number of courses taught**
TCHINCRS	Q37B	Influence on teaching-kinds of courses taught
TCHIN#STU	Q37C	Influence on teaching-number of students in classes
TCHINADVS	Q37D	Influence on teaching-amount of student advising done
TCINFACIL	Q37E	Influence on teaching-facilities and resources
TCHINRSCH	Q37F	Influence on teaching-research commitments
TCHINADM	Q37G	Influence on teaching-administrative work
TCHINFND	Q37H	Influence on teaching-availability of research funding
STUEVLTCH	Q38A	Student opinions used in faculty teaching evaluations***
TCHQALPUB	Q38B	Pressure to publish reduces quality of teaching
MTHEVAL	Q38C	Need better ways to evaluate teaching performance
TCH4PROM	Q38D	Teaching effectiveness should be primary criterion for promotion
PRMINTTCH	Q40D	Primary interests in teaching (as opposed to research)

* All Job Satisfaction questions were evaluated using the percentage of faculty responding "Satisfied".

**All Teaching Influence questions were evaluated using the percentage of faculty responding "Positive Influence".

***The four 38 questions (A-D) were evaluated using the percentage of faculty responding "Agree".

Appendix I.

Factor Structure: Ten Highest Loading Items from Principal Components Analysis

Item	Description	High Research Orientation	Low Research Orientation
AGE	Age	.72882	-.34482
TCHISES	Teaching hours per week, in session	-.70157	-.16324
RSHISES	Research hours per week, in session	.71972	-.64614
RSHNSES	Research hours per week, not in session	.81337	-.44063
PRIMINT	Primary interest in research or leaning to research	.91904	-.06957
ARTPUB	Articles published in the last three years	.90234	-.06518
RSHFND	Received funding for research in the last three years	.75843	.36274
FNDAMT	Funding less than $5000 in the last three years	-.78133	-.21737
INFLFND	Influence of funding on research	.68531	.64519
WKCOLAB	Worked collaboratively on research in last three years	.81931	.23907
Percentage of the Total Variance Explained by the Factor		67%	15.4%